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INDIGESTION AND DIET

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INDIGESTION AND DIET.

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"EAT TO LIVE, NOT LIVE TO EAT."

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P R E F A C E.

THE following pages are written for the use of my patients who may be suffering from indigestion in any of its various forms, in order to avoid the necessity of lengthened verbal or written directions at the time of consultation. At the same time it is hoped, that the general reader will find a more extensive knowledge of the laws that regulate digestion, the symptoms indicative of indigestion, and the proper diet to be used, helpful in preventing, as well as curing indigestion, when it occurs.

132, SLOANE STREET, S.W.



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ON INDIGESTION AND DIET.

INTRODUCTION.

INDIGESTION, or *dyspepsia*, is a much more common complaint than is generally believed. I suppose everyone suffers from it at one time or other in some form, though many who suffer from it are ignorant of the fact, and attribute their ailment to something else. A knowledge, therefore, of all the symptoms by which indigestion shows itself, will prevent much anxiety as to whether the heart or liver is affected, and, by drawing attention to the real source of the disease, lead to more abstemious living. A healthy man does not know that he has a stomach, and but for the feeling of hunger would not know that there was such an organ in the body. Practically, if the digestive apparatus is in good working order, the man may be said to be in perfect health. Food taken at regular times, its quantity being sufficient, and its quality good, the stomach and its absorbing apparatus being in perfect working order, thus enabling the food to be assimilated, one would, mentally and bodily, enjoy a perfect Elysium of health. But what with the adulterations of food, the unwholesome food taken, and, altogether, our artificial mode of living, the picture that can be usually drawn of the average individual is one very different from an Elysium of health. But things being as they are, our duty is to make the best of them, and, by more enlightened views being held, to some extent improve matters.

“Eat to live, not live to eat,” is an axiom that it would be well for all who suffer from any form of dyspepsia to remember. The foundation of most dyspeptic symptoms is laid by excessive eating and drinking. We all eat more than is absolutely necessary for the wants of the system—supplying the loss resulting from the mere wear and tear; whatever is

eaten in excess, if not laid up in store in the form of fat, is wasted; worse than that, if the food be of an indigestible nature, or very excessive in quantity, it is not only not assimilated, but, by its irritant effects, prevents the ordinary digestible quantity from being absorbed, and thus one may get thin by excessive eating. This is seen every day in children who, in spite of the large quantity of food they have given them, waste to a skeleton, and actually die of starvation. One mother, I remember, was very indignant with me for saying that her child (about a year old) was dying of starvation, though a day or two before its death I had seen it eating beef and potatoes with French beans. It had for some time previously been suffering from sickness and diarrhoea (caused by injudicious feeding); and though I repeatedly warned her of the danger, the mother persisted in giving similar food to that mentioned. From lack of food, then, this child actually died. In children, from their more delicate organism, the deleterious effects of over-feeding are more patent to observation, but not much more injurious, than to adults. In the latter, if not so fatal, over-feeding is more painful and chronic in its effects, Nature not relieving itself by vomiting so easily as in children; hence the train of irritant symptoms that exhibit themselves.

Coleridge says, "Excessive eating or drinking both makes the body sickly and lazy, fit for nothing but sleep, and besots the mind, as it clogs up with crudities the way through which the spirits should pass, bemiring them, and making them move heavily, as a coach in a deep way."

THE PHYSIOLOGY OF DIGESTION.

WHEN food is put into the mouth *saliva* is poured forth, and during mastication is brought into contact with the different particles of the food, and the more finely masticated the food becomes the more it gets exposed to the action of the saliva. The saliva being an organic compound in an alkaline medium acts only on the starchy portion of the food, converting it into *dextrins*, the first step towards its ultimate conversion into sugar, for starch (of which bread, rice, potatoes, and other farinaceous articles of diet are largely composed) as such is of no use in the animal economy, but before it is assimilated or used up in the system it must be converted into sugar. The saliva has scarcely any action on the albumen or on the fatty portion of the food. Besides the chemical action, saliva has an important physical one, that of moistening and lubricating dry articles of diet, and so enabling them to be swallowed. From a knowledge of the chemical and physical action of saliva, the necessity of well masticating the food, and not "bolting" it, will be apparent to all.

After the food has reached the stomach the chemical action on the starch commenced in the mouth is stopped. The *gastric* (stomach) *juice*, although closely allied to the saliva in its nature, (the active principle of both being almost identical), in consequence of its acting in an acid medium, has little or no effect on starch. On the albuminous or fleshy part of the food, as the lean of meat, the gluten of flour, and the white of egg (which is pure albumen), it has a solvent action—the resulting solution being called *peptone* (albuminose). Fats and oil are not much acted on by the gastric juice, nevertheless it acidifies the neutral fats, and so facilitates their emulsion afterwards by the bile, which cannot emulsify neutral fats.

If we could look into the stomach three or four hours after a meal, and when the gastric juice has done its work on the food, we would see that the contents were fluid and solid, the fluid portion being called *peptone* and the solid *parapeptone*,

The fluid portion is absorbed by the veins and lacteals, the solid is then passed on into the first portion of the bowel, called the *duodenum*. Everything that is acted on by the gastric juice, and that is in solution, as sugar, and all kinds of liquids, form the peptone; the tough fibre of the meat that cannot be dissolved by the gastric juice, the fat of the meat set free from the membrane that envelopes the globules, and all the other indigestible portions of food—the parapeptone—is expelled from the stomach into the duodenum, there to be acted on by the pancreatic juice and bile. Here the starchy portion of the food is again acted on, being first neutralised, and then converted into sugar. Here, too, the fat is emulsified—that is, broken up into very fine particles. This is done chiefly by the pancreatic juice. In this way the fat can be absorbed by the lacteals and carried into the circulation. The *bile*, besides assisting in saponifying the fat, neutralises the acid of the gastric juice, and so allows the starch to become converted into sugar. It also acts as an antiseptic and prevents decomposition of the food, and it has a slight, purgative action. When the food is propelled still further along the bowels, fresh attempts are made to dissolve the albumen and gelatine that escaped digestion in the stomach.

The principal cause of indigestion is when the food in the stomach, from the gastric juice being deficient in quantity, or bad in quality, fails to get dissolved; or the food may be in too great a proportion for the normal amount of gastric juice, or it may be too hard and tough, thus resisting the action of the juice. The result of this is, that the food lies like a piece of lead in the stomach, and, after leaving the stomach, frequently causes diarrhoea and other irritant effects.

THE CAUSES OF INDIGESTION.

1. EATING.

EATING hurriedly, the food being only partially masticated and mixed with saliva—"bolting" the food as it is called—is an evil which is at once apparent. In the first place, more work is thrown on the stomach, work against which a weak stomach will rebel. Again, the food being in larger pieces, it is not so readily permeated by the gastric juice, and so it may escape digestion altogether.

Besides eating hastily, eating too *frequently* is a cause of indigestion. Before the last meal is digested another is taken, and that in its turn, before half digested, is followed by a third, and so on continuously. In this way the stomach has scarcely any relaxation from work. The stomach, like the brain or the body, requires rest in order to do its work well, otherwise it gets exhausted and does its work imperfectly. An interval of four hours should intervene between each meal, hence no more than four meals a day should be taken; and this should be adhered to except in special cases, as where a full meal cannot be taken at once, then nourishment may require to be taken more frequently. This never occurs in health. There are many who can never take more than three meals a day, supper being a proscribed meal. If properly distributed over the day, three will suffice. Most of us eat more frequently than is absolutely necessary for health, or the wants of the system.

Bad cooking is also a fertile source of indigestion.

2. DRINKING.

Drinking is as common a cause of indigestion as eating, and of all drinks alcohol is the worst. The system requires only a limited quantity of fluid to make up the waste of the secretions and to assist in the digestion of food. In summer the amount required is greater than in winter, because the perspiration is greater. When much exercise is taken more drink will be required.

Tea and coffee, as will be further explained under "Food,"

are frequent causes of indigestion. Here I will only refer to the large quantities of these sometimes taken. Tea gives rise to flatulence, and coffee to weight or pain in the chest.

Alcohol, however, in one or other of its various forms, is the most fertile cause of dyspepsia.

Three points should be observed in drinking spirituous liquors:—1st. Never take them *between meals*; 2nd. Always have them well diluted; 3rd. Always get them *pure*, if possible. Of course the quantity taken has much to do with the effects, and the less that is drunk, the less will be the evil that will likely ensue. (*See Alcohol.*)

3. EXERCISE.

This, when excessive after a full meal, is very apt to bring on indigestion. Gentle exercise always promotes the digestion of a meal. The best exercise is that of walking; next to that comes riding on horseback.

Nature agrees with the old saw :—

“After dinner sit awhile,
After supper walk a mile.”

During sleep the vital functions are in abeyance, and the nervous stimuli necessary for digestion are diminished. Hence the wisdom of a light supper and having its digestion well advanced before bedtime.

The want of exercise—sedentary habits—is so well known to be a cause of indigestion, that it is only needful to mention it.

4. INFLUENCE OF THE MIND.

Grief, worry, anxiety, these are well-known causes of indigestion.

When the appetite is becoming impaired, and the sight of food distasteful, with a feeling of *ennui* creeping over the body, the mind itself getting confused, absolute rest from business, and change of scene are essential to re-establish health. Bacon says: “Be free-minded, cheerfully disposed at hours of meal, . . . avoid envy, anxious fears, anger, fretting inwards, subtle and knotty inquisitions, joys and exhilarations in excess, sadness not communicated. Entertain hopes; mirth rather than

joy ; variety of delights rather than surfeit of them." "The dietetics of the soul," as the Germans say, must be attended to as much as the "dietetics of the body" by those who are dyspeptic.

5. SMOKING AND SNUFFING.

A good deal has been written against these habits, and, as might have been expected, much nonsense. Some attribute one-half our ailments to smoking—the other half to snuffing. Smoking, if done in moderation, is not only not injurious, but very often beneficial. But it is essentially a luxury, and, like every other luxury, it is unnecessary to a healthy man. When it has become a strong habit it would seem needful for health ; if that is the case, the man is in an abnormal condition, and has been smoking in excess. What, it may be asked, is excess ? That must often depend on the individual constitution ; as what would be great excess in one would be only moderation in another. There are some who scarcely ever have a pipe or a cigar out of their mouth. Whenever they can have a leisure moment, or can find an opportunity to indulge in the weed, they are smoking. That certainly is excess.

In Germany, where smoking is so notorious, physicians recognise an affection of the eyes, which they call *tobacco amaurosis*, where the sight becomes permanently injured. Youths at school, and growing lads should *never* smoke, for in them it impairs the mental as well as the physical powers. It lays the foundation of many nervous disorders experienced in after years. It causes thinning of the hair, weak eyesight, irritates the lungs, and stunts the growth of the body. But this is what we have chiefly to do with here : it is a frequent cause, both in old and young, of dyspepsia. It acts principally on the stomach through the nerves, paralysing them, arresting gastric secretion, and interfering with the muscular movements of the stomach. Thus digestion is greatly retarded, if not cut short altogether. Tobacco likewise retards absorption, and probably assimilation ; interfering with molecular changes necessary for development.

All the good that can be obtained from smoking may be had from a couple of cigars, or two or three pipes of tobacco in the day. A cigar may do good at the end of a day's work when there is a feeling of weariness and exhaustion, and perhaps an irritable nervous system ; the sedative and slightly stimulating

effect of a smoke may be refreshing and promote digestion. It answers a similar purpose in man to a cup of tea in women.

I know of no good effect snuffing can have on digestion. Snuffers believe it stimulates the brain, and in that way does good to digestion; but the good, if any, is so remote, and the disadvantages are so many, that it is safer to avoid it—certainly for the dyspeptic. Snuff is often adulterated with lead, from being packed in leaden cases, the use of which may produce symptoms of lead poisoning.

6. TEETH.

Decayed teeth are a very frequent cause of dyspepsia; so are the want of teeth. Mastication being in those cases very imperfectly performed, the stomach has to do what the teeth ought to have done. Substances which are hard or tough must be swallowed entire. The extensive use of false teeth makes this a less common cause of indigestion. It is not often that the ornamental is combined with so much of the useful as in false teeth. And now-a-days mechanical dentistry has got to such a state of perfection, that no one need suffer from indigestion on account of bad teeth.

7. OCCUPATION.

Painters, brass polishers, grinders, and others, who, from their occupation, inhale foreign particles, are frequently martyrs to dyspepsia in one or other of its forms. Workers among chemicals, miners, paper-hangers, mill-workers are also examples

Those who have sedentary occupations—as clerks, milliners, and those who have unhealthy occupations—as cooks, iron-workers, &c, indeed all who spend much of their time in close and impure atmospheres, as well as those who, from the peculiar nature of their work—as shoemakers and carpenters—press on their stomach, suffer more often from indigestion than they otherwise would do. Those who have too much walking—as postmen, dairymen, and other pedestrians—if they eat heavily during the day may suffer from indigestion. In that case they should eat lightly during their working hours, and after they have done their day's work, at supper-time, take their chief meal.

8. BAD HYGIENE.

Close, heated rooms, especially if much gas be used ; living in low, damp localities ; thundery weather ; relaxing air, with heat and moisture ; these impair digestion. Even sea air will act injuriously on some dyspeptics.

9. BATHING.

This, if done immediately after a full meal, will cause painful digestion. The cold acting on the capillaries of the skin, drives the blood inwards, and the blood having already, by digestion, been determined to the stomach, the excess of blood interferes with the flow of gastric juice. A hot bath has a similar effect, though from a different reason ; that of causing a determination of blood to the skin, and a derivation from the stomach and internal organs. For digestion is alike interfered with, whether the stomach receives *too much*, or *too little* blood.

These are a few of the more common causes of indigestion. I have not mentioned disease as a cause, for to do so would be to enumerate half the diseases of the body. The stomach being so intimately connected with the other organs of the body, any organic or functional disorder is sure to influence the process of digestion.

Having thus far considered the *causes*, we have next to notice the principal *kinds* of indigestion.

1. CONGESTIVE DYSPEPSIA,

Or *hyperæmic* dyspepsia (*aima*, blood, and *hyper* excess), is generally chronic in its character, and the lining membrane of the stomach is the part affected. Of all mucous (or lining) membranes, that of the stomach is most exposed to the effects of irritants, as can be easily imagined from its being the receptacle of all kinds of things.

Eating and drinking are the most prolific causes of congestion. When the stomach is in a state of weakness, on account of a low condition of health, ordinary food may cause it ; and though the stomach may be ever so strong, continuous excess in eating, or food of a very indigestible character, will almost certainly produce it. Drinking in excess, especially raw spirits, invariably produces congestion after a time. The

stomach of the drunkard, after death, is always marked by some morbid change which, if not congestion, has its origin in that condition. Poisons and powerful drugs are likewise causes.

One of the principal evils of congestion is the secretion of phlegm, which is sometimes very abundant and annoying, causing vomiting, especially in the morning. When it is brought up it appears like the white of an egg. Sometimes it is coloured with a pigment which gives it the appearance of having been mixed with soot. It takes place chiefly in the morning before breakfast. There is no appetite for food, but a craving for drink; the tongue is more or less furred, the sides and extremity being red; the breath has a disagreeable odour. Food, for which there is a distaste, when taken, does not often cause pain, though sometimes a feeling of discomfort, chiefly between the shoulders, and the lower part of the breast-bone, which continues for two or three hours after a meal. There is seldom vomiting, except in the morning, and nausea is not very common. Often there is distension from flatulence, with a feeling of weight and oppression in the stomach. Besides, there is constipation, with a dry, sallow skin; coldness of the extremities and flushings of the face; a dry cough; frequent sighing; headache; sleeplessness; and thirst, which is always present.

In Alexis St. Martin, a Canadian soldier who received a gun-shot wound in his stomach, that never closed, Dr. Beaumont for the purpose of experiment, suspended bags containing food inside the stomach. He found they irritated the stomach, and caused an erythematous or spotted appearance of the lining membrane, and gave rise to a feeling of weight and distress at the breast-bone, with slight giddiness and dimness of vision, then a little pain in the forehead and through the eyes, also a sense of tightness or stiffness across the chest. The countenance got sallow and sickly. After the bags were removed the soreness at the pit of the stomach continued. Some of the bags were covered with thick mucous, tinged with yellow bile. From this Dr. Beaumont concluded that irritating substances in the stomach invited the bile to flow from the duodenum into the stomach. A similar state of things exists when indigestible articles of diet remain for any length of time in the stomach, and set up irritation.

TREATMENT.—In the treatment of this kind of indigestion the first thing to be remembered is the *diet*—the kind and the

amount. By attention to that alone, if the disease is not of long standing, a cure may be effected. This can only be expected in mild and recent cases. In the majority of cases the cure is rather tedious, and the necessity for regulating the diet is great. But *no* form of dyspepsia can be successfully treated without paying strict attention to the diet, nor will any medical treatment avail. It is often the greatest difficulty that patient and physician have alike to contend with : to adopt a diet that shall be at the same time nourishing, unirritating, unstimulating, and withal agreeable to the taste. The prospect of stale bread and water, a milk mess, and mutton is too often repugnant to the tastes and habits of the dyspeptic, and will be voted as starvation—the remedy worse than the disease. But there is a great variety of plain simple food which might be taken without fear, nay, with advantage, by the dyspeptic, certain indications being kept in view. More than four meals should never be taken, and three will generally be sufficient for the digestive powers. Three, at least, should be taken, less not being enough to maintain the nutrition of the body, or the efficiency of the gastric juice. “Extremes meet.” Too few meals being as injurious as too many, the former causing *atonic*, the latter, congestive dyspepsia.

BREAKFAST.—Unless one is very weak, breakfast should never be taken till out of bed ; but when the exertion of dressing is too much for the strength—exhaustion and consequent loss of appetite being the result—a glass of milk, or milk and lime-water, or a cup of cocoa and milk, and a biscuit before rising, will be necessary to enable such a one to partake of anything. After dressing, a light breakfast should be taken. It is a mistake many make, especially ladies, to go entirely without breakfast, or simply take a cup of coffee without eating anything, till luncheon or an early dinner, and, in order to relieve the condition of faintness that necessarily comes on, to take a glass or two of wine and a biscuit. That, in the state of stomach we are considering, is injurious, aggravating the congestion, besides being insufficient for nutrition. Breakfast should always be taken, and it may consist of weak tea, or coffee with plenty of milk, without sugar when that disagrees. If tea and coffee both disagree, Cadbury's essence of cocoa will suit, or plain milk alone. When milk is too heavy for the stomach, it should be mixed with an equal part of lime-water, when it will digest easily. Whey is very good, and may be

taken if these don't agree. Having settled the kind of drink that is most suitable, some plain food must be taken with it; plain toast without butter, a piece of white fish—sole or whiting—or a softly-boiled egg. Ham and even bacon should be avoided.

About three hours after breakfast a little refreshment should be taken—a cup of beef-tea with a biscuit. Wine and spirits should be avoided.

DINNER.—A midday dinner, about two o'clock, is better in such cases than a late dinner. In severe cases, nothing but sops can be taken for the first few days, though it is well to remember that soups, however plain, and broths are more difficult to digest with some dyspeptics than more solid substances. Usually, however, soups free from grease and spices, and thickened with barley, rice, or vermicelli, agree. Or beef-tea, mutton or chicken broths, with toasted bread and a light simple pudding or custard after. When more solid food can be digested, the best is plain fish, the lean of a mutton chop, or some chicken, with stale bread or rice instead of vegetables. If vegetables are taken they should be fresh and well-boiled, the potatoes being floury. Fruit had better be avoided. Beer, spirits, and wine strictly prohibited. When wines will be taken the lighter wines are least injurious—as Claret, Hock, Burgundy, and Champagne. Soda-water, Seltzer-water, and Potash-waters are safe drinks, and the carbonic acid contained in these has a sedative effect on the stomach. Jellies may be taken. Acid things should be avoided.

TEA.—Between dinner and tea, unless the dinner was so scanty as not to be sufficient to prevent a feeling of faintness in which case a cup of beef-tea may be taken, nothing should be eaten. Between five and six a cup or two of weak tea, or milk and water, with a little dry toast—no butter. All rich cakes, or cakes with currants, and new bread should be avoided. Sponge cakes will not hurt.

SUPPER at nine o'clock, which should be very light; bread and milk, arrowroot, and the like; or a little tripe, which is very digestible, if made without onions. If boiled with calves' feet and allowed to cool, a palatable, gelatinous mass is formed. No beer nor cheese should be touched. A cup of beef-tea may be taken as a drink. Where the stomach is very weak beef-tea or gruel should alone be taken, without anything more solid. A cup of beef-tea taken before going to sleep will answer if

other things disagree or cause nausea. Early to rest is an important part of the treatment if the symptoms are at all acute.

During the early part of the day (especially if there is thirst and a coated tongue) some of the mineral waters, as Carlsbad, Püllna, Friedrichshall, or Hunyadi Janös, answer well. If only a mild laxative is needed, Carlsbad or Friedrichshall is the best; when a more powerful one, Hunyadi or Püllna.

COMPARATIVE ANALYSIS OF MINERAL WATERS. By Schwarz and Ragsky.

CHEMICAL INGREDIENTS.	Hun- yadi.	Fried- richshall	Kis- singen.	Püllna,	Seidlitz.	Carlsbad (Sprudel).
	Vienna Grains.					
Sulphate of Magnesia . .	137.98	39.55	39.50	93.08	104.00	—
Sulphate of Soda . .	128.97	46.61	46.59	123.80	—	18.21
Sulphate of Potash . .	1.67	1.52	—	4.80	—	1.25
Chloride of Sodium . .	11.54	61.10	61.10	—	—	7.91
Carbonate of Soda . .	13.20	—	—	—	—	10.45
Carbonate of Lime . .	6.04	0.11	—	0.77	8.00	2.28
Oxide of Iron and Argil- laceous Earth . .	0.08	latent	—	—	—	0.02
Silicic Acid . .	0.09	—	—	0.17	—	—
Carbonate of Magnesia . .	—	3.99	—	6.40	3.00	—
Sulphate of Lime . .	—	10.34	—	2.00	8.00	—
Chloride of Magnesium . .	—	30.25	30.20	19.66	3.00	—
Nitrate of Magnesia . .	—	—	—	—	—	—
Bromate of Magnesia . .	—	0.87	latent	—	—	—
Chloride of Lithium . .	—	—	0.09	—	—	—
	299.57	194.24	177.48	251.28	126.00	40.12
Carbonic Acid, free and half combined . .	8.02	5.32	5.09	latent	—	11.88

From the large quantity of sulphate of soda these waters contain they are unattended with griping; the *modus operandi* of the sulphate being to retain its water of solution in the bowel, thus softening the hard and dried contents of the bowel without increasing their peristaltic action, or stimulating the intestinal glands. But it stimulates the entire excretory processes, increasing the flow of urine, and helping to deprive the tissues of their superfluous fat and acidity. Half-a-pint

should be taken on an empty stomach an hour or two before breakfast, to be repeated in the evening if necessary.

Rochelle salts (Seidlitz powders) or Harrogate salts are both very useful. Whatever salt is determined on should be taken on an empty stomach, and dissolved in a tumblerful of cold water; and the first thing in the morning is the best time. The object of these purgatives is not only to remove offending matters, but to produce an alterative effect on the mucous membrane, stimulating it to take on a more healthy action.

The alkaline or gaseous waters of Vals or Vichy are very useful, after the Carlsbad or saline have been taken. They act in a different way—the chief ingredient being the bicarbonate of soda. Part of this bicarbonate is decomposed in the stomach and carbonic acid is formed, which has a sedative effect on the congested mucous lining; part neutralises the free and superabundant acid of the stomach, and the mucous then becomes more easily removed. The alkali, still acting on the gastric glands, stimulates them, and more gastric juice is secreted, and of a better quality. Besides the local there are more general and physiological effects produced, which should not be overlooked. Soda, more than potash or ammonia is required for the blood, and has the effect of rendering it more fluid, thus permitting it to permeate better every tissue and vessel; general secretion and excretion are thereby improved, the chyle is better prepared, and the lacteals take up richer and more reparative materials. A glass or two of these waters may be taken twice a day, an hour before the principal meals. They should not be continued beyond a week or ten days, unless under advice, otherwise debility and impoverished blood may be the result. Those who can go and live for a month or two at the Spas get more quickly cured of their chronic dyspepsia, for they have not only the waters, but, what is of equal importance, change of living, diet, scenery, society, and occupation.

The above remarks on treatment especially hold good where the congestion is the result of indiscretion, either in eating or drinking, or when it is caused by congestion of the liver. In other cases a more sedative plan of treatment will answer better.

2. IRRITATIVE DYSPEPSIA.

I consider this a sufficiently common and troublesome form of indigestion to deserve separate consideration. It has for its

pathological basis *congestion*, and is thus closely allied and often intimately mixed up with the congestive form just considered. But the congestion may be very slight, and the constitutional disturbances excessive. There may be said to be an *irritative diathesis*, for we often find that a slight irritant applied to the surface may excite constitutional disturbances out of all proportion to the local cause. Therefore, irritative dyspepsia is signalised by symptoms which are not principally *local*, but show signs of its presence at some distance from the stomach, as the tongue, the lungs, the skin, the liver, or the brain. The nerves themselves escape injury (therefore differing from *nervous dyspepsia*), and are merely the conveyers of the irritation.

The tongue is coated with a thick white or yellowish fur, and thus far showing constitutional disturbance; but on investigation we find the temperature and pulse normal; no tenderness over the stomach or liver, or any affection of the other organs. What, then, is the cause of the furred tongue? A peculiar disposition in the individual, an idiosyncrasy not always present, perhaps, but frequently manifested in the same person. The irritation of the stomach excites the follicles of the tongue to increased cell-proliferation, seen in the thick fur on the tongue. When the irritation is excessive the tongue is covered with a thick yellowish fur—the mucous cells converted into pus cells.

It is frequently associated with debility of the system generally, and of the stomach in particular. In females of a nervous or hysterical temperament it may very commonly be seen, also when they are anæmic, or weak from the effects of some discharge. In such cases the dyspepsia is symptomatic.

The circulation of any poison in the blood, as arsenic or lead, may cause it. So those who suffer from a gouty or rheumatic constitution are especially prone to it; so are the consumptive. Indeed, we find it wherever there are organic diseases of the kidneys, heart, liver, or other organ. But it may exist without any organic disease, or even functional disorder, and where no known cause can be assigned to it, except, perhaps, slight congestion of the stomach, and the constitutional irritability. That *irritability* is manifested in other ways, and with no dyspeptic symptoms, and it is only in some patients that the stomach is the seat of the irritability. The skin is frequently the seat of the disorder, eruptions,

congestions, and inflammations resulting from slight irritating causes. The eyes are in others a source of constant annoyance; in a third the mucous membrane of the nose; and in a fourth, shall I say, the *temper*. The nervous system is primarily at fault in all such cases.

Though the stomach may not be irritable in the sense of rejecting everything that comes in contact with it, as in nervous dyspepsia, yet the plainest diet is, if I may use the expression, doubtfully or hesitatingly received by it. The food does not sit nicely, is a common expression, and when anything is eaten a disagreeable taste in the mouth soon follows, with a more or less thickly coated tongue.

In mild cases the only symptoms complained of may be furred tongue in the morning, the mouth, on waking, being filled with saliva, some of which may have run on to the pillow. A nasty taste in the mouth; no thirst; appetite fairly good. A burning sensation in the feet on going to bed, so that a cool place is sought for.

There may be a dry, troublesome cough, often accompanied with uncomfortable irritation in the throat, leading the patient to suspect that consumption has set in. It is this that is the matter, and no affection of the lungs whatever, in most of the advertised cases of so-called cure when in consumption. Though it is possible, if this form of indigestion were of long duration, that it might to a certain extent predispose to consumption, as well as to diseases of other organs.

There is no tenderness on pressure over the stomach, nor is pain complained of as a rule, though it may be after eating, if the food is at all of an indigestible nature. Sickness and nausea are absent, a feeling of fullness being the nearest approach to the latter. Diarrhœa is sometimes present. As soon as any food is taken the bowels act from muscular irritability of the coats, and the food is passed undigested.

As has been said, there is a disagreeable taste in the mouth after eating, also a furred tongue. The latter is seldom absent, and it remains till the indigestion is cured. Though I have one patient who always has a "foul tongue," and no treatment that can be suggested does anything towards removing it; with that exception the patient is in good health; only now and again she suffers from an acute attack of irritative dyspepsia. Change of life has doubtless something to do with it.

When irritative dyspepsia is combined or complicated with

other diseases, symptoms peculiar to each will be manifested which it is not necessary to enumerate here. (*See also Nervous Dyspepsia.*)

TREATMENT.—This is one of the most difficult forms of indigestion to treat, its cause being frequently very obscure. The diet should be bland and unstimulating, similar to that ordered under the head of “Congestive Dyspepsia.” Tea should be left off, and coffee should have more than half milk. All fermented liquors are bad. If alcohol is taken, a table-spoonful of whisky in a tumbler of water, with dinner, is the best form. If there is sleeplessness, a glassful of sherry-negus on going to bed is sometimes useful.

Exercise, change of air and scenery, freedom from worry, regular living, and a resolute will to persevere in a plan of treatment prescribed, will often be needed to effect a cure.

Purgatives are injurious, and after a simple purge at the commencement of the attack they should be carefully avoided, or used with much caution.

Special treatment suitable for the individual disease will be requisite when other organs are affected.

Sea bathing is injurious; and if baths be taken at all they should be warm ones.

If after the irritation has been removed there remains a weak stomach and enfeebled digestion, tonics must be had recourse to.

3. ATONIC DYSPEPSIA.

This is the dyspepsia of *debility*, a debility in which the stomach and the general system may participate, or the stomach alone may be affected.

CAUSES.—The causes of this condition of stomach are many, but it will suffice to point out a few of the chief.

As might be expected, those who are sickly and delicate suffer most from it. This is true whether the delicacy of constitution is acquired or hereditary. Therefore women suffer more than men, partly from being of a more delicate constitution, and partly from their habits. The aged, for an obvious reason, are more liable to weak digestion than those who are younger; those who have indoor or sedentary occupation more than those who have plenty of exercise in the open air. Whatever weakens the body, as discharges, hæmorrhages, suppurations,

or prolonged suckling; or depresses the mind, as worry or disappointment, also weakens the stomach, and unless the causes are removed it will be vain to hope to get rid of the indigestion. The stomach is almost the first organ in the body to participate in general debility; therefore avoid *everything*, and try and remove everything that *weakens the body*.

Drinking much tea and poor living are frequent causes.

The SYMPTOMS are more numerous even than the causes. The chief symptom complained of is *pain after eating*, coming on soon after, and lasting two or three hours till gastric digestion is completed. The pain is of a heavy, dull character, but not sharp. It amounts more to a weight felt in the chest, at the breast-bone (sternum) or between the shoulders; more under the left than the right blade-bone; frequently felt in the left chest in the region of the heart, thus causing the patient to suspect heart disease. The pain experienced is often of a prickly, stinging character; sometimes a sensation as if something were drawing together the chest and the back, thus causing the patient to draw a deep breath with the hope of being able to remove the obstacle.

After the food has gone from the stomach into the bowel the pain disappears, but only to return again with the next meal. Hence eating becomes a dread, lest this "pain in the chest" should be brought on. Fluids do not cause the pain as a rule, though in some few cases they are as bad as solids. There is seldom or never any *thirst*. The appetite is bad, and most kinds of food distasteful, unless very delicate and savoury to tempt the appetite. Although liquid foods do not cause a "weight," they, as well as the more solid food, often cause pain from flatulence or acidity, the result of fermentation. *Heartburn* may be experienced, and a rancid fluid, with half-digested food, may rise into the mouth. *Pyrosis*, or water-brash (a tasteless fluid rising into the mouth), is common; also *hiccough*. There is seldom any *sickness* or *vomiting*. The *tongue* is pale, broad, and flabby; clean unless there is irritation, in which case, as we pointed out under that affection, there is a white fur, more or less thick, according to the amount of irritation. *Headache* and *giddiness* are frequently felt; *constipation* is a constant symptom, also distended abdomen and *borborygmi*, or rumbling of the bowels. The pulse is weak, and there is a feeling of languor, with a disinclination for work. A sensation of sinking is often experienced at the pit of the

stomach, followed by a sense of fullness. There is no tenderness over the region of the stomach. The bowels are generally constipated, though if anything difficult to digest be eaten diarrhœa is likely to come on. The countenance is sallow and pale, and the patient may get thin.

When this atonic condition of the stomach is added an inflammatory attack, as is not unfrequently the case from injudicious diet, symptoms peculiar to the congestion or inflammation will arise. Again, when there are nervous symptoms, extreme languor of body and mind will be felt, aching in the limbs and pains in the knees; irritability of disposition; listlessness with forgetfulness, palpitation and shortness of breath, with a dry cough. When to these cold, clammy sweats are added, the patient begins to get frightened and thinks he has heart disease or is consumptive; and not without reason, as incipient consumption is frequently ushered in by similar signs.

TREATMENT.—This to be successful will depend on a great variety of things: the *cause* of the atony; the length of time it has lasted; the condition of the patient, and his surroundings. If it is purely a local affection, and of short duration, it is easily cured. If, on the other hand, the patient has a delicate constitution, and is placed under bad hygienic conditions—little exercise and little fresh air—the dyspepsia will be a much more difficult thing to get rid of.

Being essentially a disease of weakness, the first thing to be done is to remove all fluxes or discharges, if any should be present, in this way to husband the strength. This alone will often do much to effect a cure. Everything must be done and taken that will improve the strength; but here the greatest caution will be required. Eating too much, or eating improper food, is worse than taking too little nourishment. A weak stomach can never digest strong food. No rule for diet can be laid down to suit every one; special cases will require special directions. The following hints will be generally applicable:—Stimulating foods and drinks should be used with the greatest caution, for *stimulation* is not strength, and it may do harm by producing irritant or inflammatory effects. A glass of brandy and water, or a glass of wine, may remove the feeling of faintness for a time, and enable some food to be taken which otherwise would have to be left alone. But the fact that a quantity of food has been disposed of is not proof that it will be digested and assimilated. And what is the effect on the

stomach? The weak stomach, forced by a stimulant to receive a quantity of food quite unsuited to it, is overtaxed and irritated. The effect of the stimulant is like a whip or a spur to a jaded horse, a little more work is got out of it. But the cost in the case of the stomach, as in the case of the horse if it is valuable, is too great, and, if often repeated, will *tell*. This is a frequent cause, I imagine, of that confirmed dyspepsia to which many are martyrs. What is wanted is not *stimulants*, but *tonics*—to give tone to the muscles and vitality to the nerve; *that* is the only genuine *force*, or rather *aids* to force, for food is the true force.

The *diet* to be used should be limited in quantity and nutritious in quality; easily digested, administered frequently according to the quantity taken, and the weakness of the patient. Milk, beef-tea, extract of meat, eggs, and farinaceous food; then fish, mutton, beef, and tripe, to be selected according to the ability to digest. (*See Food*.) Classes 3 and 4 should be avoided. If milk alone be too heavy, it may be mixed with equal parts of lime-water, which will make it easily digestible; or it may be boiled with corn-flour, arrowroot, or given in the form of a custard or light pudding, when it will usually agree. Beef-tea or mutton broth, with toasted or stale bread, or aerated bread or biscuits. When anything is known to disagree, causing acidity or flatulence, it should be avoided. In many cases the patient can tell better than the doctor what to take and what to avoid. Where there is much acidity, saccharine substances should be used sparingly, or altogether eschewed, and so should too much starchy food. Wines and malt liquors, if they ferment in the stomach and cause flatulence, should also be left off. Where they agree, a glass or two of dry sherry during the day, or a glass of bottled bitter ale, taken with meals, does no harm. If these cannot be taken without injury, and some stimulant must be had recourse to, a little brandy or whisky well diluted with water is best. Spirits have the advantage over wines and beers, of not fermenting. Claret and other acid light wines are very good. To get all the good that alcoholic beverages can give, and none of the harm, they should be taken in measured quantities and sparingly, and always *with food*.

For other drinks cocoa and coffee are best; tea must be sparingly used.

If the dyspepsia is only slight, vegetables may be taken, but

they should be young, fresh, and well-cooked. Potatoes should be mealy, and neither very young nor very old; the former being too waxy, and the latter too sweet from the sugar they contain. Peas and beans are bad, unless the peas are young and soft. Fruits, as strawberries, oranges, and grapes, are harmless, devoid of skins and pips. Apples should be cooked; pears and plums avoided. Jellies are good. All kinds of pastry are bad; so are rich and seasoned dishes, oily and fatty foods; shell fish; cod and salmon; salted meats, bloaters, &c., the whole of Classes 3 and 4.

Three or four meals a day in the majority of cases will be quite sufficient, the fourth being a very light one, as gruel or beef-tea. Three or four hours should elapse between each meal; four or five after dinner if that be the chief one. This will enable the stomach to digest the food, and have an hour or two of rest afterwards. The stomach requires rest like every other organ. I pity the stomachs of some poor creatures who ply them with food before the preceding meal is half digested; and yet they wonder why they suffer from indigestion. The other extreme is to be guarded against—too long rest, else exhaustion will be the result. It will be well, then, for the weakly and delicate to take a light breakfast in bed before dressing in the morning, otherwise, after the long period of fasting, the exertion of dressing may destroy the little appetite there may be.

Ice and cold water promote gastric secretion if not taken in too large a quantity. Food made acidulous with vinegar, or other acid, causes less gastric juice to be poured forth. But acids taken after meals, half an hour or an hour, are often the most powerful aids to digestion that we possess, and for the following reasons:—A limited quantity of gastric juice can only be poured forth, regulated more by the requirements of the system than the quantity of food taken; therefore, if a meal be taken *large* in proportion to the gastric juice present in the stomach, or capable of secretion, only a definite quantity can be digested, not because, as Dr. Carpenter has well pointed out, the pepsine has lost its power, but because the dissolved food—the peptones—interferes with its further action, the pepsine being of the nature of a ferment. Just as alcohol, when formed in large quantities during the process of fermentation, puts a stop to the fermentation by virtue of its presence; so when a limited quantity of gastric juice is in the presence of a large

quantity of nitrogenous food, the acid, so to speak, gets used up before the pepsine, and fresh acid added enables the pepsine to digest more of the food. This is an important fact to bear in mind, even when one is in perfect health; for the large amount of food many consume is never digested; much is wasted. And in atonic dyspepsia, when the gastric juice is present in a much less proportion than in health, the *rationale* of regulating the kind and quantity of food is apparent, as well as using means to increase the quantity of the juice, or to utilise it to the utmost by adding fresh acid.

Taking pepsine can only be of use when that happens to be deficient. It is obtained from the stomach of the calf or pig. It does not do the good it might, as that usually sold is quite inert. Either the way in which it is prepared, or the time it is kept, destroys its power. Dr. Pavy recommends artificially-digested food for weak stomachs, but food so prepared is very unpalatable.

Obstinate constipation should be combated (*see* Constipation) by dieting and gentle purgatives. Powerful opening medicines, as jalap and black draughts, do harm.

In the summer months, especially if hot, a very troublesome form of this dyspepsia is experienced, and, from the languor produced by the heat, it may take a long time to get rid of, unless change of air be taken; then it will yield much more speedily than if treated at home by medicines only. The reason of this is that the system generally, as well as the stomach, is out of sorts, and a change invigorates both.

4. NERVOUS OR NEURALGIC DYSPEPSIA.

With this form of indigestion the *atonic* is generally associated, though it may exist alone, the nerves being essentially the parts affected. It is closely allied to the irritative dyspepsia, though distinct from it. The nerves of the stomach may be the only ones perceptibly at fault, though in most instances they are only the outward expression of a more general innervation, or nerve disturbance. Mal-nutrition is probably the foundation of all painful affections of the nerves; some important element, as iron or phosphorus, being withheld from them, or something abnormal carried to them. Men and women alike suffer from this, the elderly more so than the younger. In

hysterical women, and hypochondriacal men, it may assume painful proportions. Whatever exhausts the body predisposes to it; but of all the causes none is so fertile as the mind when it is worried or anxious. It is in this form of indigestion where the mind exercises its injurious influences over the body, the stomach bearing the brunt of the attack. The influence of the mind over the body has already been mentioned, and it is the nervous form of dyspepsia that is most frequently complained of. When one is greatly worried or anxious, or mentally overwrought, if dyspeptic symptoms are added, the mental are aggravated, and the one reacting on the other, a rather unhappy condition is reached.

The *symptoms* are very numerous and varied, and are *local* and *general* in their nature.

LOCAL.—*Pain* is nearly always a constant symptom, and, unlike the pain in other dyspepsias, it is worse *before* eating—that is, when the stomach is empty. Eating may for a time relieve it, perhaps as long as food remains in the stomach; if there is *atony* combined with the nervousness, the pain comes on an hour or so after food has been taken, and then, with only slight intermissions, it lasts till something else is eaten. The pain may be very great, or only a dull, sinking, uncomfortable sensation may be experienced, scarcely amounting to pain. *Vomiting* is a very frequent symptom, seldom accompanied with much nausea. As soon as anything is taken, whether food or drink, it is up again. The *appetite* is capricious; sometimes entirely gone, at other times the most indigestible things are desired, and even cheese may cause less pain than milk or beef-tea. *Thirst* is sometimes felt; also heartburn and hiccough. Flatulence and acidity are usually very annoying, especially the former. There are flushings in the face; headache; giddiness; specks before the eyes; and a feeling of inertia—languid, low-spirited, and disinclined to work. Anomalous sensations, as anæsthesia, tenderness, “pins and needles” in the limbs, with coldness of feet and lower extremities. Eruptions on the skin, as nettle-rash; and redness of the nose suddenly appearing from imperfect innervation. Drowsiness or sleeplessness, with palpitation and constipation, are likewise troublesome symptoms. Gurgling noises in the bowels, with pain in the lower part of the stomach in the right side, just above the groin. The urine is pale, and often contains oxalate of lime. The *tongue* is pale, broad, and quivering when protruded; or it may be

abnormally red, or sometimes furred, though usually clean. Sometimes the patient has "the fidgets"; when he sits down he constantly keeps moving about his knees and arms, shifting his position from time to time, and never seems at rest. These are symptoms occasionally seen.

Neuralgias of all mucous membranes tend to increase their secretion, hence we have increased gastric secretion here; but the fluid is not possessed of much digestive properties. It rises up in the mouth (pyrosis) either as a tasteless or acid fluid. Soon after a meal the stomach gets distended, before the food has had time to ferment, therefore the gas must be secreted from the mucous membrane. The acidity often complained of is from hypersecretion more than from fermentation.

Nervous women suffer much from pain over the "heart" and flutterings at the stomach; the breath foul, and a disagreeable taste in the mouth on waking. There may be neuralgic pains in other parts.

TREATMENT.—The cure of this kind of indigestion is often tedious, and taxes the patience of the sufferer. Much will depend on the *causes*, and the conditions under which the patient is placed. The cause frequently lying deeper than the stomach, a more general plan of treatment will be necessary. Everything likely to cause it—as worry, overwork, poor living, low, damp, or unhealthy surroundings, fluxes of all kinds—these having been removed, or reduced to a minimum, the patient is placed in a favourable position. A *tonic* plan of treatment will then be necessary.

The use of baths greatly expedites the cure, indeed is indispensable in some cases. Sea-bathing, the cold plunge, or shower baths or, what is better still, the *hydrotherapy* of the French. They have establishments for the purpose, but it may be done at home in the following way:—On getting out of bed wrap the body in a sheet, gently wrung out of cold water, for two or three minutes, then rub the body with it; then rub with a dry (not warmed) towel; afterwards dress and start for a brisk walk of three-quarters of an hour; then return to breakfast. This may be repeated at bedtime.

Mineral waters are also useful, especially the Chalybeate, from the iron they contain. The Vals, Vichy, Seltzer, and Lithia neutralise acidity and act on the bowels, and have a sedative effect, on account of the carbonic acid they contain.

Liqueurs are agreeable aromatics, relieving flatulence, as

the Anisette fine de Hollande, or the yellow liqueur of Grande Chartreuse.

ALCOHOL.—By virtue of the known physiological action of alcohol, spirits are more useful in this form of indigestion than in any other. Its action being stimulant, then narcotic, it is very useful in lulling the pain and relieving the sinking complained of, thus enabling more nourishment to be taken. But its use must be guarded, and its quantity measured, if its good effects only would be obtained, two or three ounces of whisky, or brandy, with water, in twenty-four hours; or two or three glasses of champagne, and, unless it increases the flatulence, a glass of sherry with hot water and sugar on going to bed will promote sleep. Beer and ales will usually prove injurious, and should be abstained from.

The *diet* should consist of nitrogenous food chiefly; farinaceous substances being less suitable on account of their tendency to ferment, thus causing acidity and flatulence. Plain soup, beef-tea, fish, beef, mutton, or fowl; toasted bread or biscuit; a sparing supply of butter, fatty and saccharine substances. Highly animalised food, by improving the quality of the blood—increasing the proportion of red corpuscles—better nourishes the nervous system, and so destroys the tendency to neuralgias. Therefore as much beef and mutton as can be digested should be taken, and pepsine may be taken with it to assist. Vegetable diet has an opposite effect, that of lowering the proportion of red blood corpuscles.

In some cases of nervous indigestion fluids are more difficult of digestion than solids, and a piece of chicken or beef will answer better than either chicken broth or beef-tea.

GALVANISM.—This is frequently recommended in dyspepsia, but it is of no value whatever except in some forms of that just considered. It is especially useful in nervous vomiting, and nervous pain in the stomach, occurring in the hysterical. It should be applied along the spine, or one handle over the stomach, the other behind the neck. The best form of apparatus is the continuous current of an ordinary galvanic battery—as a Daniell's—with a sufficient number of cells to make it strong. The various magneto-electric machines advertised have no advantage over the ordinary galvanic battery, indeed are not so good. They act chiefly on the mind.

5. STRUMOUS DYSPEPSIA,

Or scrofulous indigestion. This is seen chiefly among young children. Many of them eat ravenously, but get thinner in spite of the food taken. At first there is no disease of the bowels, but the mucous membrane of the stomach and the duodenum do not readily absorb the proper amount of nourishment. Soon the glandular structure becomes involved, the motions get greenish or clayey coloured, the belly large and the extremities pale and cold, and all the symptoms of consumption supervene, which soon cut off the child. The same thing is seen in the adult, when it has been called *phthisical dyspepsia*, and they are too often the premonitory symptoms of consumption. It commences with failure of appetite, debility, white furred tongue, a distaste for fats and oily foods. There are acid eructations, flatulence, and a tendency to night perspirations.

TREATMENT.—Cod-liver oil in ten or fifteen drop doses in children; or olive oil rubbed inside the thighs, or on the stomach, before the fire, night and morning. The oil should never be given on an empty stomach. In children the food should consist of plenty of rich milk, eggs, and beef-tea. At breakfast the fat of bacon will be easily digested.

6. INTESTINAL DYSPEPSIA.

It has already been mentioned, in the physiology of digestion, that after the food escapes from the stomach it enters the upper part of the bowel (duodenum), and is then subjected to the intestinal juice, the bile, and the fluid from the *pancreas*; these act chiefly on the oily and starchy portions of the food; only slightly on the nitrogenous. When these juices are from any cause deteriorated in quality, or diminished in quantity, the fatty portion of the food, and the starchy, may escape from the bowels without being digested at all. If those foods are taken in too great quantity, they may also escape digestion. Sometimes portions of animal food, too difficult of digestion for the stomach, enter the duodenum and cause pain.

The symptoms of this form of dyspepsia are: *pain* just below the pit of the stomach, of a griping character, coming on from three to five hours after a meal, and lasting for an indefinite time, frequently causing *diarrhœa*, and *tenderness* on pressure. *Flatulence* is a constant symptom, and very often, especially in

the old, the only symptom. The intestinal juices have not the same power of preventing fermentation as the gastric, and if the food is detained, on account of sluggish bowels, or other cause, for more than three or four hours, fermentation is sure to set in. The presence of fat or starch in the stools therefore indicates intestinal indigestion. This is a constant symptom in consumptives and children who waste away, therefore pancreatic juice and bile, artificially obtained, have been given with benefit in that class of cases. *Pancreatic emulsion*, being oil emulsified with pancreatic juice, frequently removes the intestinal indigestion, nourishes the body, and enables ordinary diet to be digested. In adults this kind of indigestion is usually temporary, and the result of some indigestible food, as pork or veal, and beefsteak pies. A simple purge will suffice to remove it, with a plain milk diet for a day or two. All the articles in Class 4 (*see Food*) will be likely to produce this kind of indigestion, unless the powers of digestion are good.

If the diarrhœa does not carry off the undigested food, *vomiting* frequently sets in.

SYMPTOMS OF INDIGESTION.

As we frequently find some one symptom so prominent, and troublesome, as to solely attract the patient's attention, causing other symptoms, if any, to be overlooked or disregarded, a few words on each of the symptoms may be useful.

1. PAIN BEFORE EATING.

Pain in the stomach when one gets up in the morning, or in the middle of the night; even when no supper has been taken, or four or five hours after any light meal, when sufficient time has elapsed for its complete digestion, depends on the nerves of the stomach—is a *neurosis*. There is a pain which is sometimes experienced three or four hours after a full meal, and must not be confounded with the above pain, as this may be the result of intestinal dyspepsia, already described. Here the treatment necessary to remove the pain is very different to that required for the nervous pain, as the former more resembles the congestive or irritative indigestions. Accompanying the nervous pain in the pit of the stomach, there is often pain under the left breast, or below the shoulders, or in the right side; also neuralgia of the face, head, or some other part of the body. It is most frequently seen in women, or nervous men, mostly at middle life, or old age. It resembles the pain of colic, and is called *gastrodynia*; it may be very severe or only slight. When it is severe it is probably caused by muscular contraction, and therefore not so much nervous in its origin. But this cramp-like pain may have a nervous as well as a muscular origin, though one or the other element will usually predominate. If the pain is of long standing, and persistent in character, it may arise from the presence of either an ulcer or cancer; if these exist, other symptoms, which will throw light on the disease, will usually be present. The presence of acidity, pyrosis, or flatulence is also a constant source of pain before food. Pain in the region of the stomach is frequently mistaken for the pain under consideration, and may be due to the liver, gall stones,

or even muscular pains in the abdominal walls, in which case there is tenderness on pressure, a symptom seldom complained of in nervous pain, or "pain before food." Pain, when the stomach is empty, is often relieved by taking some food or drink. The appetite may be unaffected or capricious. The health will be fairly maintained in spite of the continuous pain, which would not be the case if there were organic disease of the stomach. Pain in the side and over the region of the kidney is frequently dyspeptic.

TREATMENT.—The relief of this is often the most tedious and difficult of all the symptoms of dyspepsia, and for the simple reason that the local pain is too frequently the expression of a general constitutional malady, and in order to effectually remove the pain, the tone of the system must be improved. As might be expected, it is most stubborn in nervous females, especially those who are badly nourished or weakened from discharges. After removing, as far as possible, everything that tends to lower, and placing the patient in good hygienic condition, with plenty of good food and air, and sufficient exercise, the patient will be placed in a fair way to recovery. The diet should be nourishing, with abundance of animal food. It is the height of folly for young ladies, still in their teens, to live, as they so often do, on bread and butter, and without animal food. Nourishing diet, an hour or two of exercise daily in the open air, and the discontinuance of tea, will do much to remove the constant "pain in the side."

2. PAIN AFTER EATING.

This is more common than the preceding, and where it is not from any organic disease, as ulcer or cancer, it is the result of weakness (atony), or congestion of the stomach. It comes on from half an hour to an hour-and-a-half after a meal, and usually lasts for three or four hours, till gastric digestion is finished; sometimes even after the food has left the stomach. (*See Intestinal Dyspepsia*) The pain may likewise be felt when the stomach is perfectly healthy, if anything very indigestible has been eaten. In that case relief may not be had till the offending substance has passed out of the stomach. Pain after food has been taken may be very slight, only amounting to a feeling of uneasiness or weight in the chest, or between the shoulders, or it may be very severe, and give no rest till the food is gone.

After that the relief is generally complete, and lasts till another meal is taken. This is true unless the pain is of a neuralgic or inflammatory character, in which case the pain may be independent of food; or if from very indigestible food, irritant effects may remain after the cause has been removed.

In the *treatment* of this the *diet* is all important, and should be of the simplest possible kind—Classes 1 and 2. (*See Food.*)

3. TENDERNESS.

When pressure is made over the pit of the stomach pain is felt. This is not often complained of by dyspeptics, but sometimes it exists in the catarrhal or inflammatory stages of the disease, also in the neuralgic. This pain is very frequently confounded with neuralgia, or muscular pains caused by rheumatism. In that case the pain is more superficial and not affected by eating. When the tenderness is confined to one spot some organic disease of the stomach, as cancer or ulcer, may be present, or an acute inflammatory attack. Mere functional derangement of the stomach can scarcely cause tenderness.

TREATMENT.—Beef-tea, milk, and farinaceous diet, and the avoidance of spirits and tea, or whatever stimulates.

4. VOMITING.

Sometimes this is the principal symptom complained of, and a very troublesome one it may be. No sooner is food taken than it is rejected, and even drinks may not be tolerated. When the vomiting occurs, unaccompanied with the feeling of nausea, it has a nervous origin, and may be the result of irritation reflected from some other organ, as congestion of the brain, the stomach itself being healthy. When such is the case the treatment must be directed more to the organ affected than to the stomach.

If nausea precedes or accompanies the vomiting it has a congestive or inflammatory origin, and is said to be “bilious,” though the bile may have nothing to do with it. If the vomiting is severe, or continues for any length of time, bile is mixed with the matter vomited, but bile is no more the *cause* of it than it is in sea-sickness, where it is entirely the result of the straining, the muscular effects forcing the bile upwards into the stomach, instead of downwards to the bowels. When the liver

is congested, and the stomach at the same time implicated, *true bilious vomiting* then occurs. In other cases it is a misnomer, the presence of bile being simply the effect of the vomiting.

Vomiting is so frequently symptomatic of other diseases besides those of the stomach, that that fact must not be lost sight of. The vomited matters may consist of the food or drink taken, or of mucus, or bile, or blood, or matter (pus). When the latter is present, there is either ulceration, cancer, or some tumour. It does not occur in mere dyspepsia, though phlegm or mucus is common enough. Bile, as has been said, may be the result of retching or continuous vomiting. It is rather a sign of health than otherwise, as those who suffer from chronic diseases seldom vomit bile. *Blood*, usually from ulceration, may come in large quantities, and is nearly always dark in colour. There may be streaks of blood in inflammatory or congestive attacks. When it comes from the stomach its darkness in colour is from the action of the gastric juice; when from the lungs it is of a bright colour. When phlegm is vomited it takes place the first thing in the morning, and is from catarrh of the stomach, and most commonly induced by drinking spirits. In infants an overloaded stomach is the most common cause of vomiting, and next to that teething and affections of the head.

Green bile is vomited when the stomach acts on it, the gastric juice turning it green.

TREATMENT.—Very little food of any kind should be taken for twelve hours, as the stomach should be rested. Ice, with or without the aerated waters, may be useful. Alcoholic beverages should be abstained from.

5. FLATULENCE.

Next to pain this is the most frequent and distressing symptom, especially in old people, or in those who are very nervous. The hysterical, hypochondriacal, and large eaters are martyrs to it. Its causes are numerous. For example, in nervous women it may arise from air swallowed, the muscular fibres of the gullet being relaxed; or from excess of air being swallowed with the food. When the food is arrested, from any cause, in its progress out of the stomach to the bowels, fermentation takes place, and carbonic acid is formed and expelled; if the food is detained very long it may even decompose, and sulphuretted hydrogen is formed, which is easily recognised by its offensive smell. In

to add starch or sugar to the cocoa, and thus attenuate or thin, it down, in order to hide the presence of the oil. But these adulterations only increase the indigestibility of the cocoa, for besides the oil the stomach has uncooked starch-granules to digest. The preparation made by Cadbury—"Cadbury's Essence of Cocoa"—is to a great extent free from these faults for they have succeeded in extracting the cocoa butter, as it is called, from the cocoa, and then there is no occasion for the addition of either starch or sugar. The cocoa is at the same time made more nourishing, as it contains more flesh-forming material and less heat-producing. The French chocolates, for the same reason as homœopathic cocoas are indigestible, they contain even a larger proportion of starchy material. They are just cocoa with various kinds of starch and sugar, with perhaps some colouring matter. Cocoa *nibs* contain less starch than either the homœopathic, French, or other advertised cocoas, but more than Cadbury's essence.

The *preparations* of cocoa that are advertised are legion, and they are nothing more nor less than cocoa adulterated with different things—as Iceland moss, arrowroot, potato-starch, sugar, and other farinaceous substances; or they are prepared perhaps in a peculiar way. The colouring matter ranges from yellow-ochre to rose-pink. It is the starch they contain that causes them to get thick on adding boiling water.

Revalenta is just lentil flour, barley flour and salt; or pea flour, Indian corn-flour and salt; and Dr. Hassell says that the last mixture does as well as any of those advertised.

Soojje is a mixture of wheat flour and sugar!

Scmolina is the gluten of wheat, with some of the starch, part being removed; in other words, flour with part of the starch removed. It may suit some who are troubled with acidity.

Farina.—Some preparations consist of rice finely powdered; some of wheat-flour baked and sweetened with sugar; others that and coloured with rose-pink.

Dyspeptics should, as a rule, avoid these, as they cause distention of the stomach and take away the appetite.

Chicory belongs to the same natural family as the Dandelion, and has similar properties. It is obtained from the roots of the wild endive. It consists of a little glucose, fatty matter, gummy matter, and some bitter extractive; but no essential oil or nutritive principle. In dyspepsia it is apt to cause pain,

flatulence, and diarrhoea. Coffee is frequently adulterated with it, and many prefer it so, but dyspeptics should avoid it, as it causes weight in the stomach and a sensation of heaviness, also an indisposition to exertion.

ALCOHOL.

Though properly speaking this is not a food, it is so commonly looked upon as such that a few words as to its action in the system, and its uses in dyspepsia, will not be out of place. Alcohol or spirit is the chief element in all spirituous drinks, and for the effects of which all are taken as beverages—brandy, whisky, gin, and rum; wines—as port and sherry—may also be added. These are no more *food* than tea or coffee, if we except the small quantity of sugar and extractive matter the wines contain. Rum is more nearly allied to wine than the other; gin, from the volatile oil it contains, stimulates the kidneys, and thus has a special action; but that is not due to the alcohol.

In considering the action of alcohol the quantity taken must be kept in view, for, like all other powerful remedies, it has different effects according as the dose is a small or a large one; and also whether it is taken only as a medicine or used every day as a beverage. It has more effect, and is more useful, if only taken in prescribed doses and when really required. Spirit should always be taken well diluted, and never raw, for then it exercises direct irritant effects on the stomach, and if during digestion arrests it, decomposing the gastric juice and paralysing the stomach for a short time. In a raw condition it is injurious in every form of dyspepsia, and to every healthy stomach. Its action when taken diluted, say one ounce in four of water (and an ounce is a large dose physiologically speaking, it being two tablespoonfuls, or a small wineglassful), is in the first instance *stimulating*—first of the nervous system and then the heart. Dr. Parkes found when experimenting on a young healthy soldier:—

1st. That alcohol (in moderate doses) increased the frequency of the pulse, it rising from 63·6 to 70·35 during the days the experiments were carried on; therefore spirit gave the heart *more work* to do.

2nd. That the temperature was unaffected, or but little altered.

3rd. That it did not appear to increase the power to bear fatigue; that the soldier thought he was less tired after digging every day for a week when he took *no* stimulant than when he was taking the brandy.

4th. That the elimination of nitrogen was unaffected by brandy.

5th. That a large proportion of the spirit taken appeared in the urine and breath *unchanged*.

These experiments agree in the main with the opinions of most physiologists. Some think that alcohol diminishes the temperature. Arctic voyagers tell us that instead of adding to their warmth, it has an opposite effect, and makes them less able to resist cold. As for the elimination of nitrogen, Parkes found it unaffected. Generally spirit is thought to diminish the excretion of that, and therefore to retard the wear and tear that is going on. I believe the destruction of tissues in the ordinary functional and vital operations of the body is not so great as was at one time supposed, and that the waste that occurs is better eliminated. If alcohol is used for any length of time it tends to retain effete material in the blood, which is apt to give rise to, rheumatism from fermentative processes occurring. Alcohol may prevent the oxidation of the glycogen, and cause an unhealthy deposition of fat; wines and beer act even more in that direction. Carpenter says spirit tends to fatty degeneration of tissue generally. I think it brings on consumption when for long taken in excess.

Fermented Drinks—as wine, beer, stout, &c.—owe in great measure their efficacy to the alcohol they contain; or rather they are taken more on account of the spirit than of the other ingredients. The following is the amount of alcohol contained in 100 parts, taking the average:—

Ale (Burton)	8.88	Claret	9.10
„ (Edin.)... ..	6.20	„ Vin Ordinaire	8.99
Small Beer	1.28	Burgundy
London Porter	4.20	Hock
Brown Stout	6.80	Nesci	13.0
Port Wine	22.96	Tent	12.0
„ „ (weakest)	14.97	Champagne	11.0
Sherry (strongest)... ..	19.0	Gooseberry	10.0
„ „ (weakest)	13.98	Orange	10.10
Madeira	16.90	Tokay	8.5
„ „ Red	20.35	Elder	8.0
Marsala	20.40	Cider	5.0
Lisbon	18.94	Brandy	53.39
Malaga	18.94	Rum	50.
Teneriffe	19.79	Gin	86.
Currant	20.0	Whisky (Scotch)	54.32
Grape Wine	18.11	„ (Irish)	53.90

Sir Robert Christison says that wines, as sherry and Madeira in casks, increase the alcohol if kept for a moderate term of years, then it *decreases*.

Ales, besides containing alcohol, contain sugar, gum, and bitter extractive matter from the hops.

Liqueurs are spirits sweetened and flavoured with various aromatics, as cloves, cinnamon, carraway, cherry, &c.

Wines contain ether as well as alcohol, sugar, extractive matter, and tannic or tartaric acid. These are natural, but the adulterations are very numerous, indeed it is next to impossible to get *genuine* port or sherry; they are mostly mixtures got up and sold under those names.

Wines and ales are on a par with tea and coffee for nourishing properties. The popular opinion that they *give strength* is very erroneous. Looking at their chemical composition, they cannot add to the nourishment of tissue, as they contain only a trace of nitrogenous matter; the sugar goes to make fat, and it is doubtful if much of the spirit is burned in the body. In those who drink large quantities of beer or wine and get corpulent, it is not due to the direct nourishing properties of these, but to the fact that the hydro-carbons of the food are prevented from undergoing combustion as they should be; and the tissues themselves are apt to undergo fatty degeneration. Again, corpulency and strength are not synonymous terms, and those who get stout from beer drinking are less able to bear up under acute attacks of disease. The sugar has much to do with the formation of fat, as a pint of beer or porter contains about seventy-six grains. Brewers get fat on beer, and children on condensed milk; but both lack stamina, and are ill able to contend with disease.

In most forms of dyspepsia, as has already been pointed out, both beer and wine are injurious, for the reason that they are very apt to ferment, causing flatulence and acidity, thereby increasing the pain and inconvenience already experienced. The heat of the stomach favours the acetous fermentation. The only form of indigestion where wine or diluted spirit is serviceable is the *nervous* and atonic *dyspepsias*. In the former there is an over-sensitiveness of the nerves of the stomach; and the alcohol acts *locally* as a narcotic, and deadens the sensibility of the stomach. But, unless the spirit be given in limited and small quantities, it will *irritate* instead of soothe. When spirit or beer is used as a beverage, they should never be taken on an

empty stomach, but always with food; less harm will thus be produced. The only exception to that is in atonic dyspepsia, where there is no irritation present; and as dilute alcohol is known to stimulate the flow of gastric juice, it will often do good to give it just before meals. It must, however, be diluted, otherwise it will defeat the end in view, by throwing down the active principle—the pepsine—of any gastric juice that may be present in the stomach.

Alcohol is well known to be a frequent cause of indigestion; and it is equally well known to experience as well as to physiologists to be unnecessary when plenty of good food can be obtained, with a healthy stomach to digest it. When little food can be eaten, spirit may do good by slightly retarding the metamorphosis of tissue, on the principle that "What is saved is gained." In special circumstances, and wisely used, this is an advantage; but, as shown above, it is a doubtful advantage, to say the least, in the presence of health and food.

There are some who believe they can get through more work, especially brain-work, if they take with their dinner a small quantity of pure spirit—say, two tablespoonfuls of pure brandy or whisky in water; that it keeps off indigestion and maintains their health. On the other hand, there are others who think that it incapacitates for work and makes them drowsy and dyspeptic. Both are right—one is the better for it, the other is worse. Alcohol *does* produce something bordering on drowsiness or *dulling* of the nerve centres, conservation of energy as it has been called, from its action as a narcotic. This forms one of its chief uses in overwrought or worried brains. But then it must be taken in small quantities, and with meals. It should never be taken in the forenoon by any one in health; and with dinner a glass of beer, or a couple of glasses of claret, or a tablespoonful of whisky in water, is sufficient. In health, with a good digestion and plenty of air and exercise, alcohol in any form is never *necessary*. And in dyspeptics *more* than a wineglass of spirit, or two glasses of wine, or a pint of ale, in the twenty-four hours is apt to do harm.

In Alexis St. Martin's stomach it was found after intoxication that the mucous membrane was "dark red in colour, with an arid mucous coat, abraded in spots and rolled in small shreds." It need not be wondered, then, if an attack of indigestion for two or three days was the result.

Foods, for the convenience of dyspeptics, may be divided into four classes :—

- 1st. FOODS EASILY DIGESTED.
- 2nd. THE MODERATELY DIGESTIBLE.
- 3rd. THE DIFFICULT TO DIGEST.
- 4th. THE INDIGESTIBLE.

CLASS I.—THE EASILY DIGESTED,

Or safe.—The varieties of food placed under this head may be safely used by all dyspeptics, and in most forms of dyspepsia, keeping out of view a few exceptional individuals who have peculiar idiosyncrasies which reverse all ordinary rules of dietetics. A ladder of diet under this class would begin with *milk*. Milk has already been considered, and is easy of digestion; equal parts of milk and lime or soda-water will prevent it from causing weight or uneasiness. It is more easily digested if drank before the cream is allowed to rise, as previous to that the particles of oil are more minutely divided. Of course no acid food or drink should be taken for some time after milk. Milk takes about two hours to digest.

It is important not only that a thing should be easily digested, but that it should possess nourishing properties after it is digested; the most easily digested thing is not always the most nourishing. In milk we have a food, not only easily digested, but nourishing. Beef-tea, mutton broth, and, indeed, most liquid food, are easily digested, for little digestion is required before they are absorbed by the veins, &c., of the stomach or duodenum. Where the mucous membrane of the stomach is inflamed, food like thick soup may disagree, for the liquid part gets absorbed, leaving the solid on a stomach which does not afford gastric juice enough to digest it. This is frequently the case in fevers, therefore only the most fluid forms of food should be allowed in such cases. Milk and rice, or sago, or tapioca require no longer time to digest than milk alone. But the following table of Dr. Beaumont's will show how long different articles of diet will take to digest.

ARTICLES OF DIET.	Mean Time of Chymification.	
	Preparation.	H. M.
Cartilage... ..	boiled	4 15
Pork, recently salted	boiled	4 30
Veal, fresh	fried	4 30
Ducks, wild	roasted	4 30
Suet, mutton	boiled	4 30
Pork, fat and lean	roasted	5 15
Tendon	boiled	5 30
Suet, beef, fresh	boiled	5 30
Cabbage	boiled	4 30

Experience has mostly verified the results given in this table, but a few of the things require altering by the dyspeptic. Thus venison, though put down at 1 h. 35 m., will be found too rich and stimulating for weak stomachs, and will require to be placed in the 2nd or even the 3rd Class of Foods. So pork, which in St. Martin's stomach only took three hours to digest, will prove quite *indigestible* to all dyspeptics; though those who live in the country, with plenty of fresh air and exercise, will digest pork much better than dwellers in town.

Under the 1st Class may be placed all farinaceous diet, as bread and milk, milk puddings, and milk itself. Eggs, tripe, white fish, especially whiting and sole, plaice and salmon-trout, as they are devoid of oil or fat. The lean of a mutton-chop and underdone roast beef may usually be tolerated by weak stomachs. Also raw oysters; jellies, baked custard; chicken broth with some of the chicken grated down (as the chicken is of a close fibre). The breast of turkey roasted, and boiled partridge are admissible. Also Extract of Meat, grapes, ripe oranges (unripe gripe), the pips being rejected.

Biscuits, toasted bread, aerated bread, and stale bread—not new or home-made bread—are suitable.

DRINKS.—Barley soup, toast and water, cocoa without starch, and plenty of milk, beef-tea, mutton broth, with the fat all skimmed off, and veal broth may be taken; also lemonade, ginger-beer, or soda-water.

All the above are easily digested, though much will depend on the cooking, or preparing, for if badly cooked, or cooked

twice, they may be made indigestible, and therefore would be placed under the 2nd or 3rd Class of Foods.

If time in digesting were alone taken into account in classifying articles of diet for dyspeptics, many vegetable substances would be added to the above list, as salads, potatoes, hash meat and vegetables, apple dumplings, &c., for these are chymified in as short a time as boiled mutton; but vegetables are so apt to set up fermentation, that they must be placed in the 3rd Class.

CLASS II.—FOODS MODERATELY DIGESTIBLE.

These take from two to three hours to digest. Boiled eggs—boiled enough just to coagulate the white. Mutton, roast and boiled; and mutton-chops. Beef, roast and under-done; and tender beef-steak. Beef is more difficult to digest than mutton, its fibres being more infiltrated with fat. Chicken; wild rabbit; sweetbread; pigeon. Oysters cooked, and oyster soup; turtle fins; cod and turbot. Mealy potatoes; cabbage with vinegar; cream and butter; sugar. Grouse, blackcock, and venison, these to some stomachs will be found rather stimulating. Turtle if young and plainly cooked. Milk and yolk of eggs, though these may lie heavily because of the fat they contain. Farinaceous preparations, as farina, semolina, soojie, revalenta, Indian corn-bread, &c., as being so largely advertised as suitable for the dyspeptic, should be all placed in this 2nd Class. Bacon—the fat of bacon is easily digested; so is cod-liver oil. Other fats should be placed under the 3rd Class. Game is easier to digest than poultry or meat. Coffee and weak tea, with plenty of milk, should be placed in this Class.

CLASS III.—FOODS DIFFICULT TO DIGEST.

These take from three and a half to four and a quarter hours. They are mostly unsuited for dyspeptics, and if taken should be taken with caution, at once leaving them off if pain or other inconvenience be caused. This is a “dangerous” Class, to say the least, and under it are included: liver and kidney; *fried* beef, or cold roast beef *stewed*; boiled salt beef; fowl boiled or roasted; roasted duck or wild duck; lamb and sucking pig;

soup from beef, with vegetables and bread; hash meat and vegetable. Salmon, herrings, pilchards, and sprats—these abound in oil and are stimulating, causing thirst and an uneasy feeling in the stomach. Pheasant and partridge (being rich and stimulating); duck and also goose, their flesh being permeated with fat. Eggs and bacon—the fat of salt pork and bacon is less injurious than fresh animals' fat—omelets; jams. These latter *irritate*, therefore they may be useful in constipation.

Fancy bread, rolls, home-made bread, cakes, hot-buttered toast, pastry, suet and yeast pudding and pancake, muffins and crumpets.

Preserved meats, as sardines; tongues; salmon; and mackerel.

In this Class may be placed vegetables, as boiled carrots, turnips, parsnips, beans and peas, new potatoes (on account of being so waxy). Cucumbers, anchovies, celery, onions, garlick and leeks, &c. Some of these relatively may not be difficult to digest, but on account of the tendency spoken of to disagree in dyspeptics, they should be regarded as dangerous, and some of them even poisonous, to certain stomachs. The same may be said of fermented liquors—beer, ale, stout, and porter, also most wines, the light wines, as claret and burgundy, excepted. Strong tea, and perhaps coffee, should also be placed here; also pickles and condiments, unless aromatics are required, then they should be used with caution. Almonds, nuts, and all substances intimately incorporated with oily matter, or things hard and difficult of penetration by gastric juice, unless they are previously powdered in a mortar; therefore, only a limited quantity of cheese can be digested, especially if roasted. Cheese is very nitrogenous, and, therefore, very nourishing when digested. Shrimps, prawns, cockles, whelks; shell-fish, as crabs, lobsters, mussels, and periwinkles, especially if these are moulting; entrées and other dishes seasoned with spices, are all difficult to digest.

CLASS IV.—INDIGESTIBLE.

The following are very difficult to digest, and should always be avoided by those who have weak digestive organs; and by

those who are strong they should be sparingly used, unless they have ostrich-like stomachs:—

Veal and ham pie.	Hard-boiled eggs.
Pork.	Lobsters.
Veal.	Radishes.
Beefsteak pie.	Nuts.
Sausages.	Dumplings.
Salt beef.	Husks of fruit.
Cheese.	Rinds „
“Puff” pastry.	Raw spirits.
Hashes and stews.	Unripe fruit.
Melted butter.	New bread.
Red herrings.	„ potatoes.
Eels.	Shell-fish.
Fried dishes.	Currants.
Roe and milt.	Strong tea.
All tough substances, vegetable or animal.	

The most of the above take from four hours to five and a half hours to digest.

INFANT FEEDING.

INFANTS and children under two years old suffer as much as adults from indigestion, though the varieties are not so numerous, nor the symptoms so varied, but in many cases the results are more serious. The only *cause* of indigestion is overfeeding, or improper feeding, allowance being made for constitutional debility, which predisposes to, or even brings about, that disorder, irrespective of the diet. In such cases the food may be good, and wisely given, but the power of digestion and assimilation are impaired to such a degree as to cause wasting and death. It requires the utmost medical skill to cope with such a state of things, and improper feeding destroys the only chance of life. However weak a child may be from birth, the good effect of proper feeding is marvellous. On the other hand, the slightest inherited weakness is soon intensified by bad feeding, and consumption of the bowels, or disease of the mesenteric glands (evidenced by the large and hard belly), are the result. But indigestion, though it often leads to disease of the bowels in young children, is quite distinct from that, and much more easily managed. The child is born healthy and strong, and thrives well for a longer or shorter time, till some friend or old nurse, or, perhaps, the mother herself, thinks of doing something more for her infant. If there is one thing more than another which should be impressed on all mothers and nurses it is this, "leave well alone." When children are thriving well on the breast alone, why should they not be allowed to continue so doing? But no, something else must be done—some food must be given; some corn-flour added to the milk; some patent food tried; some indigestible biscuit used; some home-made sop inflicted, and so poor baby's stomach must suffer. Fortunately for the child it is often strong enough to be none the worse for the cruel kindness, and thrives in *spite* of it, though mothers mostly say in *consequence* of it when they do thrive, but none dream of attributing its death to it when the child happens to die. More children die from overfeeding than underfeeding; and if to overfeeding I add improper food,

I do not exaggerate when I say more than half of all the children who die under eighteen months die from that cause. All who are entrusted with the upbringing of children will at once see the importance of "infant feeding."

When possible, the infant, if at all sickly or delicate, should be brought up entirely on the breast, for much difficulty as to feeding is thereby avoided. When the mother is too delicate or unwilling to nurse her child, or if her milk be deficient in quantity or goodness, *milk* from other sources should alone be given. This should be continued till the child is seven or eight months old. Here let me observe that "milks mixed"—that is, partly mother's milk and partly cow's milk—are not injurious; and, practically, milk, if good, though it comes from different cows, is just as good as milk "from one cow only." Indeed, nursery milk from "one cow" is often a delusion, and the only difference (I speak of London) between nursery milk and ordinary milk is the price. The great thing is to get milk *as* it comes from the cow, and not watered or otherwise adulterated.

When the child has reached the age of eight or nine months, some farinaceous food should be added to the diet, such as sop, baked flour, or corn-flour. After nine or ten months the mother's milk is very weak and worthless, and the habit among the poor of suckling their children beyond that time is injurious both to mother and child. When a child is thriving, "feeding" (food other than milk) should never be commenced till the age mentioned. But when it is *not* thriving what is to be done?

Inquiry should be made as to the cause. 1st. Whether the milk of the mother is deficient in quantity, or inferior in quality; 2nd. Whether the child, from being overfed, is suffering from indigestion, with frequent sickness, irregular action of the bowels—the motions being green, slimy, curdy, or offensive. When *green* they are occasioned by a weak condition of the mucous lining of the stomach and bowels, the liver also being at fault. When *slimy* it is due to a catarrhal state of the alimentary tract, and in both kinds to an imperfect elaboration of milk. The *curdy* stool is due to imperfect digestion of the casein of the milk, either from the superabundance given, or more often to an irritable state of the bowels from over acidity or other cause, time not being allowed for the digestion of the milk. The offensive stool is due to two causes: decomposition of the food, and deficiency

of bile, which is an excellent antiseptic. A depraved condition of the mucous membrane favours it.

If any of these kinds of stools, or modifications of them, are present, the child is suffering from indigestion. Being in pain, it cries frequently; its cry being frequently of a whining character. The child is restless and fidgety, stretching its legs and rolling about, and again crying. The mother, either to keep it quiet, or thinking it is crying for food, gives it the breast, which succeeds for a time in quieting it. Soon after it begins to cry again; again it gets the breast, or is fed. It becomes sick and throws up curdled milk; it is again fed; cries and is sick; and this goes on for days or weeks, the sickness alternating with diarrhœa. The latter soon exhausts the child's strength; it wastes, pines away, and, unless speedy and skilful treatment intervene, dies. This is an everyday experience with those who have much to do with children. Nor does the impure atmosphere and overcrowding of our large towns in any way ameliorate the case. It will be observed that *feeding* is the cause of all the above symptoms; the persistent and foolish overloading of a stomach inflamed and irritable, and which Nature tries to relieve by vomiting, or by a simple diarrhœa. In such cases, if the breast were withheld for a few hours, and a spoonful of toast and water given instead, the stomach would recover itself, and the milk would be digested as usual. The mistake that some nurses and mothers make, that vomiting the milk is a healthy sign, is a very grave one, and the sooner it is known the better. that vomiting is no more a healthy symptom in a child than it is in an adult. It is *fortunate* for the child that it is sick, but beyond that the sickness is just Nature relieving itself of the superabundance of milk that has been given. And it is wonderful the power some children have of recovering themselves by the simple method of vomiting; otherwise the more serious symptom of diarrhœa would supervene. More than a limited amount of milk cannot be digested by the child any more than a limited quantity of food can by the adult. Nor can the stomach of the infant be always digesting, though in this respect it is more active than the adult. A new-born baby should never be fed oftener than once in *two* hours during the day, and in three or four during the night, gradually lengthening the interval to three or four during the day, and five or six in the night, as the child gets older. Should it cry between times, other means of quieting it than feeding should

be adopted. The child will generally leave off when it has enough of the breast, and if it cries an hour after, it is not because it is hungry, but because it is in pain from "wind" usually. *Too much food is even worse than too little*, and giving too much is equal to giving too little, as far as nourishing the child is concerned, for in such a case *a little* even may not be digested.

When the mother's milk requires to be supplemented, animal's milk should be given alone, if a wet nurse cannot be kept. When an infant is brought up entirely by the hand, more care is required to substitute a suitable form of food, at once nourishing and digestible. The best food is undoubtedly milk, and that from the ass or the cow is the best. The asses', as will be seen from the following table, most closely resembles woman's milk:—

	Asses'.	Woman's.	Cow's.	Goat's.	Ewe's.
Casein	1·82	1·52	4·48	4·02	4·50
Butter	2·11	3·55	3·13	3·32	4·20
Sugar of milk	6·08	6·50	4·77	5·28	5·0
Different salts	0·34	0·45	0·60	0·58	0·68
Total solids	9·35	12·02	12·98	12·20	14·38
Water	90·65	87·98	87·02	86·80	85·62
	<hr/> 100·00	<hr/> 100·00	<hr/> 100·00	<hr/> 100·00	<hr/> 100·00

The casein in woman's and asses' milk is nearly the same; but the butter is in smaller proportion in the asses', on that account it is more easily digested by some children. It also contains more water. On the other hand, cow's milk contains the same amount of butter as woman's milk, but too much casein, and too little sugar. In order, therefore, to bring it nearer to the mother's milk, that fresh from the cow must have water and sugar added to it—two parts of milk and one of water slightly sweetened. The quantity given at one time should not be less than four and not more than ten tablespoonfuls, or from two to three pints in the twenty-four hours. The water added to the milk should be sufficiently hot to raise the temperature to about 95° F., a temperature a little lower than the blood. It is thought by some that much mischief is done to delicate babies by giving milk at different temperatures; sometimes hotter than 95° F., and sometimes much colder, and it has

been recommended to give the milk always cold, rather than at such different temperatures. In hot weather, especially if the child is inclined to diarrhoea, the milk *cooled* (by adding a piece of ice) will be beneficial. When a child is not thriving, more than ordinary care should be taken in the matter of heating the milk.

Goat's milk often answers very well, and should be tried if the others disagree, a little water and sugar being added. Ewe's milk is too rich for infants, and cannot be digested by them.

We frequently find that cow's milk, with water, cannot be digested, but is brought up curdled. In that case equal parts of milk and lime-water, with a lump of loaf sugar, should be tried, or one part of milk (less if a young infant), two parts of water, a piece of sugar, and a teaspoonful of cream in each bottleful. It is the casein that curdles, and if that is reduced, and the milk made richer with cream, it oftens answers well. Or if these fail, a *teaspoonful* of baked flour added to a feeding bottle full of the ordinary milk and water, and well boiled with it, will break up the casein, and so make the milk more digestible. When the occasion for the above has passed away, it will be well to go back to the ordinary mixture of milk and water.

When milk contains too large a quantity of nutritious matter it is apt to cause vomiting and diarrhoea, for that which is not digested only irritates. Hence the mischief that often arises from feeding infants with some of the various advertised preparations, given in addition to milk. Husks, tops and bottoms, and biscuits of all kinds, are *abominations*, and do more than anything else I know of to produce diarrhoea and indigestion. There are none of the preparations that have yet been made, neither Liebig's food nor Ridge's food, nor any other, that can take the place of milk. Chemically they may be as nearly allied as possible to milk. Yet general experience proves that the effects on infants are very different; that may be on account of their more difficult digestibility. But milk is, like natural mineral waters, inimitable by art. There is something in the natural products that cannot be imitated exactly.

Of the different foods, perhaps Liebig's is the best. It is composed of milk, wheaten flour, malt and bicarbonate of potash; the malt is for converting the starch of the flour into sugar, and the potash to neutralise any acidity. Most of the

other farinaceous foods are little else than *baked* flour, or potato flour, sweetened and coloured; and baked flour answers as well as any of the advertised foods for infants. The intense heat in baking makes the starch more soluble, and more easily digested. However, if farinaceous preparations are added to milk and given to young infants, the proportions of plastic and carbonaceous elements are altered, and so digestion is disturbed. After a certain age, say nine months, the digestive organs get stronger, and can then digest different foods better. This is also the case with very robust children; here it should be remembered that they are *robust* in spite of, and not *because* of the food added to the suckling. Well-boiled sop made from ordinary baker's bread answers as well as most things, and should always be given after the child has been weaned.* When the child is a year old, it may have thin slices of bread and butter, or bread and gravy, or perhaps a small piece of baked potato with gravy, and milk messes generally.

Condensed milk is bad when given exclusively to children. Those who are brought up on that usually look fine, fat, plump children, from the large amount of sugar the milk contains; but my experience is that they have no *stamina*, and are soon cut down by a slight illness. Therefore, young children should never be fed entirely on condensed milk; though children over the age of nine months may have the Swiss milk given to them with other food.

When *diarrhoea* in infants sets in from improper feeding, even milk may be vomited, or be passed as curd and increase the diarrhoea. In such a case, even with lime-water, cow's milk may be injurious, and will have to be discontinued. So with asses' and mother's milk. In such a case milk for a day or two should be left off entirely, and a little gruel or toast and water given, and perhaps a little beef-tea, or cream, but, better still, raw beef prepared thus: Take half a pound of lean tender beef, chop it finely up, add an ounce of water and beat it up in a mortar, then strain through muslin: add a little salt to the fluid part and give frequently in teaspoonfuls. The most irritable stomach will retain this, with a little management, which is very nourishing, and tends to check the diarrhoea. The *eau albumineuse* of the French is an excellent drink along with the raw beef. To prepare this drink, the whites of two

* Nestle's milk food will be found a useful preparation.

eggs are to be well shaken up in a bottle containing about a pint of cold water. A little of this may be given frequently to quench the thirst. By that treatment I have often saved children when dying, and when milk or milk food would have killed them. When they recover I find they generally dislike the raw beef which they took greedily when so ill, but I continue it till they refuse to take it. By that time they can usually digest milk, the breast or asses', if not cow's. To that they should be strictly confined till they get quite strong.

Before concluding I need scarcely add that milk should be perfectly fresh, and should be obtained from the cow at least twice a day; it should be kept in a cool place, and two feeding bottles be in use, the empty one being kept in cold water with a little baking soda. Where the child is taking the breast, and only requiring cow's milk once or twice a day, it is better not to use a bottle, but to give the milk by a spoon, for more care is used, especially by nurses. Allowing the baby to go to sleep with the tube in its mouth, or letting it suck half the night, is very reprehensible, and may ruin a child's digestive organs. During the night as during the day *regularity* should be insisted on. Not only will that be better for the child, but, before long, it will give less trouble to the nurse.

FINIS.

APPENDIX.

APPENDIX.

DAILY DIETARY.

LOW DIET.

Breakfast : 3 or 4 oz. of bread (toast) with or without fresh butter ; $\frac{1}{2}$ pint of milk.

Dinner : 1 pint of beef-tea, with $\frac{1}{4}$ lb. of bread or rice pudding.

Tea : 1 pint cocoa and milk, or weak tea and milk ; 4 to 6 oz. toast or biscuit.

Supper : $\frac{1}{2}$ pint of rice milk.

MIDDLE DIET.

Breakfast : 1 pint milk, or cocoa and milk ; 6 oz. stale bread and $\frac{1}{2}$ oz. butter.

Dinner : 1 pint beef-tea ; 4 oz. of beef or mutton, or $\frac{1}{2}$ lb. fresh fish, $\frac{1}{4}$ lb. potatoes, or rice pudding.

Tea and Supper : Same as Low Diet, with oatmeal gruel for supper.

FULL DIET.

Breakfast : 1 pint of coffee and milk, or cocoa and milk ; 8 oz. fish, or a softly-boiled egg.

Dinner : $\frac{1}{2}$ lb. meat (mutton or beef), $\frac{1}{2}$ lb. potatoes, or rice pudding ; a small custard, or other light milk pudding.

Tea : 1 pint weak tea and milk ; 6 oz. bread and butter, or toast.

Supper : Some simple milk mess, or a little tripe plainly cooked.

MILK DIET.

A pure milk diet should consist of 12 oz. of bread, 2 pints of new milk ; or, 1 pint of milk, with rice, sago, tapioca, or arrowroot boiled, or made into light pudding ; 1 oz. of fresh butter ; gruel and barley water as required ; beef-tea or mutton-broth when necessary.

DIET FOR CHILDREN.

THE following recipes for making "Flour Ball" and "Rice Water" may be found useful for young children if they are not thriving on the ordinary milk diet. They will answer better than most of the advertised foods for infants, and they have the advantage of being cheaper.

BOILED FLOUR OR FLOUR BALL.

Take one quart of good flour; tie it up in a pudding bag so tightly as to make a firm, solid mass; put it into a pot of boiling water early in the morning, and let it boil until bedtime. Then take it out and let it dry. In the morning peel off from the surface and throw away the thin rind of dough, and, with a nutmeg-grater, grate down the hard dry mass into a powder. Of this from one to three teaspoonfuls may be used, by first rubbing it into a paste with a little milk, then adding it to about a pint of milk, and, finally, by bringing the whole to just the boiling-point. It must be given through a nursing bottle.

An excellent food for children who are costive may be made by using bran-meal or unbolted flour instead of the white flour, preparing it as above directed.

RICE WATER.

Wash four tablespoonfuls of rice; put it into two quarts of water, which boil down to one quart, and then add sugar and a little nutmeg. This makes a pleasant drink.

A pint or half a pint of milk added to the rice water, before it is taken from the fire, gives a nourishing food suitable for cases of diarrhoea.

Sago, tapioca, barley, or cracked corn can be prepared in the same manner.

ARTIFICIAL ASSES' AND GOATS' MILK (Tanner).

Take half an ounce (one tablespoonful) of gelatine, and dissolve it in half-a-pint of hot barley-water. Then add an ounce of refined sugar, and pour into the mixture a pint of good new cow's milk.

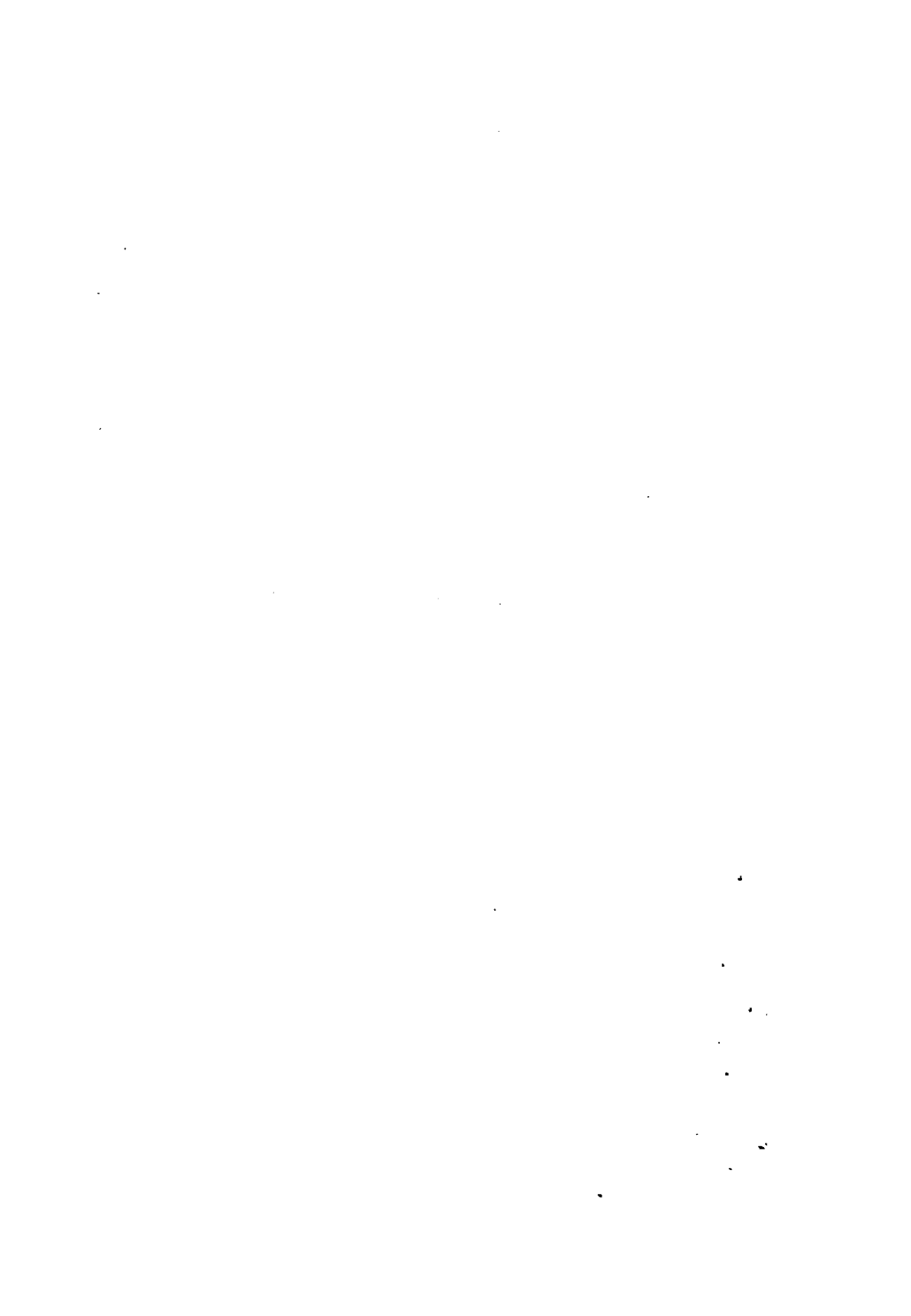
Chop an ounce of suet very fine, tie it lightly in a muslin bag, and boil it slowly in a quart of new milk, sweeten with white sugar.

TAPIOCA AND COD-LIVER OIL (Alexis Soyer).

Boil a quarter of a pound of tapioca till tender in two quarts of water; drain it in a cullender, then put it back in the pan; season with a little salt and pepper, add half-a-pint of milk, and put over one pound of fresh cod liver cut in eight pieces. Set the pan near the fire to simmer slowly for half-an-hour, or a little more, till the liver is quite cooked. Press on it with a spoon, so as to get as much oil into the tapioca as possible. After taking away the liver mix the tapioca. If too thick, add a little milk, then boil it a few minutes; stir round, add a little salt and pepper, and serve. *The above is very useful and nourishing in delicate children, especially with large stomachs. It is easily digested.*

LIME-WATER.

Take a handful of quicklime, slake it, and put it into a quart bottle full of soft water. Shake the bottle well, and then allow the undissolved portion of the lime to settle. Pour off the clear liquid when needed, replacing it with more water, and afterwards shaking the bottle briskly.



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